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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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The Honorable James Abdnor, House of Representatives
The Honorable Clarence J. Brown, House of Representatives
The Honorable James T. Broyhill, House of Representatives
The Honorable Bob Carr, House of Representatives
The Honorable Dan Daniel, House of Representatives
The Honorable David W. Evans, House of Representatives
The Honorable William D. Ford, House of Representatives
The Honorable Edwin B. Forsythe, House of Representatives
The Honorable Mark W. Hannaford, House of Representatives
The Honorable Andrew J. Hinshaw, House of Representatives
The Honorable Marjorie S. Holt, House of Representatives
The Honorable Richard H. Ichord, House of Representatives
The Honorable John W. Jenrette, Jr. House of Representatives
The Honorable Jack F. Kemp, House of Representatives
The Honorable William M. Ketchum, House of Representatives
The Honorable Robert J. Lagomarsino, House of Representatives
The Honorable John Y. McCollister, House of Representatives
The Honorable Mike McCormack, House of Representatives
The Honorable Robert H. Mollohan, House of Representatives
The Honorable Albert H. Quie, House of Representatives
The Honorable Robert A. Roe, House of Representatives
The Honorable Keith G. Sebelius, House of Representatives
The Honorable David C. Treen, House of Representatives
The Honorable G. William Whitehurst, House of Representatives
The Honorable Don Young, House of Representatives

Pursuant to your September 24, 1975, letter, and a November 3, 1975, letter from Congressman James Abdnor, we reviewed certain effects that the Environmental Protection Agency's new regulations for the procurement of architect-engineer services will have on the municipal waste treatment construction grant program.

The Agency published proposed regulations on May 9, 1975, establishing policies and procedures governing procurement of architect-engineer services under the construction grant program. About 1,650 comments were submitted to the Agency concerning the proposed regulations. These comments were considered by the Agency during subsequent revisions to the regulations and the Agency held meetings with representatives of

engineering groups, county and municipal associations, and State and local officials to develop and review the final regulations. The Agency also participated in a series of workshops throughout the country to inform engineering firms, States, and municipalities how the regulations would be implemented.

The final regulations were published in the Federal Register on December 17, 1975, and most provisions became effective on March 1, 1976. The final regulations reflected major revisions to the original version. The Agency said these revisions were aimed at reducing paperwork and easing administration of the new procurement requirements.

Our review showed that the regulations will add additional time to the construction grant process; however, without actual experience under the new requirements it is difficult to estimate the precise extent of any delays. The Agency stated that the benefits of the new regulations will outweight any delays. Affected parties generally believed the regulations were workable and could be implemented.

During our review we discussed the new regulations with Agency officials in Washington, D.C., and in regional offices in Chicago (region V), Kansas City (region VII), and San Francisco (region IX); State and local water pollution control agencies; consulting engineering firms and professional engineering societies; the National League of Cities; the National Association of Counties; and the Office of Federal Procurement Policy, Office of Management and Budget.

As part of our review, we attended a jointly sponsored Environmental Protection Agency-consulting engineer-grantee workshop in Boston, Massachusetts, on December 10, 1975, during which the proposed architect-engineer procurement regulations were discussed. We also reviewed comments received by the Agency in response to the proposed regulations published in the Federal Register on May 9, 1975.

The enclosure to this letter is a brief description of the new Agency regulations and our comments on the specific questions raised in Congressman Abdnor's November 3, 1975, letter.

Comptroller General
of the United States

Enclosure

ENCLOSURE ENCLOSURE

Contents

ENCLOSURE

ABBREVIATIONS

EPA	Environmental Protection Agency
GSA	General Services Administration
FMC	Federal Management Circular
OMB	Office of Management and Budget
OFPP	Office of Federal Procurement Policy

INTRODUCTION

A September 24, 1975, letter co-signed by Congressman James Abdnor and 24 other Members of Congress raised several questions concerning the Environmental Protection Agency's (EPA's) proposed regulations for procurement of architect-engineer services in the waste treatment construction grant program. We met with Congressman Abdnor and his staff to clarify and discuss the questions. In a November 3, 1975, letter, Congressman Abdnor provided us with seven questions concerning the effect of EPA's proposed regulations.

MUNICIPAL WASTE TREATMENT CONSTRUCTION GRANT PROGRAM

Municipalities are responsible for planning, designing, constructing, operating, and maintaining waste treatment facilities. Most municipalities, especially the smaller ones, hire consulting engineering firms because they do not have the engineering capability to plan, design, and supervise treatment facility construction.

Consulting engineers hired by municipalities are responsible for most phases of constructing waste treatment facilities. The services vary slightly from project to project but generally include selecting the treatment process; preparing design plans, specifications, and cost estimates; supervising construction of the facility; preparing the applications for financial assistance; and representing the municipality in dealing with State agencies and EPA regional offices.

EPA has structured its construction grant program so that grants are awarded for three steps--step I, preparing facility plans; step II, preparing construction drawings and specifications; and step III, constructing the facility. Each of the three steps requires a separate grant application.

DEVELOPMENT OF THE REGULATIONS

On May 9, 1975, EPA published proposed regulations to establish policies and procedures governing procurement of architect-engineer services and to amend existing regulations relating to construction contracts. The proposed regulations requested the submission of comments from interested parties. About 1,650 comments were received by EPA from the engineering profession, State and local governments, sewage authorities, professional associations, construction contractors, equipment manufacturers, and others. These comments were considered by EPA program, legal, audit, and grants administration personnel in developing the final regulations.

Following the comment period, EPA held a series of meetings with representatives of professional groups, States, city and county national associations, and municipalities who participated in a line-by-line review and development of the final regulations. EPA stated that this process identified problems and resulted in significant changes in the proposed regulations, especially in reducing unnecessary paperwork and easing administration of the new requirements.

EPA also participated in a series of six workshops held throughout the country at which engineering, State, and local officials were informed of the specific requirements of the new regulations and the responsibilities of grantees and consulting engineering firms. The final regulations were published in the Federal Register on December 17, 1975, but most provisions did not become effective until March 1, 1976, in an effort to facilitate an orderly transition and to minimize disruption of the construction grant program. Two appendixes dealing with provisions required for inclusion in architect-engineer and construction contracts were published on March 4, 1976, and were retroactive to March 1, 1976.

National engineering societies, county and municipal associations, and State officials stated that EPA did an outstanding job of involving affected parties during review and revision of the final regulations. The affected parties generally agreed that the final regulations were workable and could be implemented.

MAJOR PROVISIONS OF THE REGULATIONS

EPA felt that, because of the enormous size of the construction grant program, irregularities could exist. EPA believed that regulations were necessary to minimize the potential for misuse and insure the prudent administration of Federal funds. Seven major provisions contained in the regulations are designed to protect the propriety of the construction grant program.

--Contract types: The regulations prohibit the use of cost-plus-percentage-of-cost and percentage-of-construction-cost contracts for architect-engineer services. We have consistently believed that cost-plus-percentage-of-cost contracts should be avoided because they give contractors positive incentives to inflate contract costs to increase their profits. Fixed-price, cost-reimbursement, and per diem agreements are permitted by the new regulations.

--Public notice: Grantees with populations over 25,000 are required to make public announcements requesting architect-engineer qualifications or to use a prequalified listing for all contracts over $25,000. The public notice requirement is to insure that grantees have an opportunity to consider the qualifications of all architect-engineers interested in providing professional services under the construction grant program. This requirement is not applicable to engineering services for facility design or facility construction if the grantee wants to continue using the engineer engaged for initial facility planning.

--Selection process: At least three technical proposals for architect-engineer services are to be requested. Mandatory selection criteria are provided for evaluating the three finalists. A selection panel is to be established and will contain technical expertise to the extent practicable. This process is applicable to grantees with populations over 25,000. In determining the ultimate awardee from among the finalists the grantee must conduct negotiations either in accordance with the provisions of Public Law 92-582 (40 U.S.C. 541-544), commonly known as the Brooks Bill, or State and local procedures. In any event price competition is not required.

--Cost review: Architect-engineers must complete a cost review form--which identifies the separate elements of cost and profit--and certify that costs are current and accurate for all jobs over $10,000. The cost review form is to assist grantees in their review and evaluation of contract proposals submitted by architect-engineers.

--Review by EPA: EPA project officers will review the architect-engineer selection process and the cost review forms for procedural compliance on all contracts over $100,000.

--Change orders for construction contracts: For change orders in excess of $100,000 the construction contractor must provide cost and pricing data to enable the grantee to determine the necessity and reasonableness of costs. The contractor must certify that these costs are current and accurate. In addition, the change order must be submitted to EPA for review.

--Progress payments to contractors: Payments are provided for work-in-place, materials or equipment delivered

or stockpiled, and for specifically manufactured equipment as work progresses. The revision is intended to reduce interest charges for capital, which were previously incurred by contractors and suppliers and were passed along to grantees and EPA in higher contract prices.

RESPONSE TO THE QUESTIONS

The following sections contain the information developed in response to the seven questions raised in Congressman Abdnor's November 3, 1975, letter.

1. What is the estimate of loss due to inadequate recordkeeping of EPA-assisted projects by municipalities?

The importance of good recordkeeping practices is emphasized in Federal Management Circular (FMC) 74-7, issued by the General Services Administration's (GSA's) Office of Federal Management Policy. The circular establishes standards for grantee financial management systems and states that such systems shall provide for accurate, current, and complete disclosure of the financial results of each grant program. Grantee financial management systems shall also provide for records which adequately identify the source and application of funds and which contain information on grant awards, authorizations, obligations, unobligated balances, assets, liabilities, outlays, and income.

EPA regulations state that grantees must maintain adequate books and records in accordance with generally accepted accounting principles. Grantee records must sufficiently reflect the amount of all funds received and distributed and total project costs of whatever nature incurred on the project.

On the basis of our current and prior reviews of EPA's waste treatment construction grant program, we do not have sufficient information to estimate the total loss due to inadequate recordkeeping in the program. EPA also has not estimated such losses resulting from poor recordkeeping practices by municipalities.

EPA's Office of Audit, however, has identified several instances where grantee accounting systems and records were inadequate and costs claimed by grantees were subsequently considered ineligible for Federal reimbursement. For example, a December 1975 EPA audit report stated that a county sewer authority's accounting records needed improvement because eligible and ineligible costs had not been separated in the

accounts. The report considered $2.6 million--or about 8 percent--of the $32.7 million claimed by the grantee as ineligible project costs.

In addition, a January 1976 EPA audit report stated that another county sanitary district needed improvements in its accounting system. Under the existing system, accounting records were incomplete, supporting documentation was lacking, and there was no separation of eligible and ineligible project costs in the accounts. Because of these deficiencies, EPA auditors questioned $988,000--or about 25 percent--of the $3.9 million that had been claimed by the grantee.

Inadequate recordkeeping on construction grant projects could also result in grantees not being reimbursed for eligible project costs. For example, $116,000 of the $988,000 discussed above was questioned by the EPA auditors because of insufficient documentation. A portion of these costs could be for items which otherwise would be eligible for reimbursement.

2. What is the estimate of loss due to "goldplating" on EPA-assisted projects?

EPA has not estimated the loss due to goldplating in the waste treatment construction grant program nor do we have information on the extent of goldplating in the program. However, in our report to the Congress entitled "Potential of Value Analysis for Reducing Waste Treatment Plant Costs" (RED-75-367, May 8, 1975), we pointed out that the sheer magnitude of the estimated billions of dollars needed to construct municipal waste treatment facilities called for cost controls to insure that Federal funds were effectively used. We stated that value analysis--a systematic approach to identifying opportunities to reduce construction and operating cost-- showed potential for greatly reducing waste treatment plant costs without sacrificing essential requirements. A value analysis study of a $4.1 million waste treatment plant identified estimated potential initial capital cost savings of $1.2 million and operation, maintenance, and replacement cost savings of $1.4 million projected over the estimated life of the plant.

Before our review neither EPA, States, nor consulting engineers had systematically reviewed design plans and specifications using value analysis to insure that plants were designed at lowest cost. EPA has recently incorporated a mandatory value analysis program into its construction grant process.

We are examining opportunities to reduce the cost of constructing waste treatment facilities through improved management of the construction grant program. One area of concern, for example, is the need for EPA to establish criteria for the types of items which would be eligible for funding. Such criteria would affect the eligibility of items which may be considered goldplating.

3. What is the estimate of loss due to inadequate consultation, design, engineering, and construction of facilities that will be corrected through these regulations?

We have no estimate of the loss resulting from inadequate consultation, design, engineering, or construction of waste treatment facilities. However, our current review of opportunities to reduce the cost of constructing treatment facilities includes consideration of management controls exercised over the planning, designing, and construction of such facilities.

EPA has no estimate of the total loss due to inadequate consultation, design, or engineering in the grant program, but prior experience in the program indicates that errors can occur in the design and construction of treatment facilities and costs could be incurred to correct the deficiencies.

For example, in a February 1975 report on an interim construction grant audit, EPA's Office of Audit identified instances of inadequate engineer design and construction at a waste treatment facility. The report stated that basic design error was the cause for leakage of sewage effluent and algae growth on the outside walls of trickling filters costing $1.7 million. The EPA report stated that effluent leakage was caused by the consulting engineer's choice of interior wall-sealing material and engineering specifications which did not properly specify the method of wall surface preparation for the sealer.

The report also noted poor construction of the telescoping weirs on a sludge lagoon. The weirs could not be raised or lowered because the contractor did not build them according to specifications and the city may have to correct the problem at their own expense. The report also stated that the weirs leaked effluent excessively because of possible inadequate design and that if modifications to the weirs did not solve the leakage problem the consulting engineer should be required to redesign the weirs to correct the problem.

EPA stated that the objective of the new architect-engineer procurement regulations is to insure that a grantee

obtains the best possible engineering design to avoid situations such as those described above. The engineer who has performed all of a town's curb-and-gutter work may not be best qualified to design waste treatment facilities. EPA believes that without the selection process specified in the regulations, the grantee would not have the opportunity to determine the qualifications of architect-engineers.

The new regulations also establish the responsibilities of engineers for services provided in the design of waste treatment facilities. An engineer is responsible for the professional quality and technical accuracy of designs, drawings, and specifications and is to correct any deficiencies in these areas without additional compensation.

The new procurement regulations are intended to insure that qualified engineers are selected to design treatment facilities and that engineers are held responsible for work performed. Through these measures the opportunities for design errors should be reduced and the losses resulting from correcting such deficiencies should be minimized.

4. Section 35.936-20(c) stipulates that reasonable costs of compliance with the procurement requirements of these regulations are allowable costs of administration under the grant. What is the estimate of grantee costs of compliance under these regulations?

EPA considered grantee ability to comply with the procurement requirements contained in the proposed regulations. The final regulations exempt grantees with populations of 25,000 or less from the public announcement and selection requirements for obtaining architect-engineer services. These exempted grantees account for about 80 percent of the construction grants awarded as of December 31, 1975. Therefore, the majority of grantees in the construction grant program should have small increases in administrative costs resulting from the implementation of applicable sections of the regulations. We noted, for example, that in EPA region VII, which includes Missouri, Kansas, Iowa, and Nebraska, only 45, or about 4 percent, of the estimated 1,100 municipalities had populations exceeding 25,000, and one State had only 3 municipalities above this level.

Grantees with populations exceeding 25,000 received about 20 percent of construction grants and about 70 percent of construction funds awarded as of December 31, 1975. Many larger municipalities have formalized procurement systems and already use procedures similar to those required by the regulations, such as public announcement, evaluation, and cost review

provisions. These municipalities would probably experience minimal, if any, increased administrative costs as a result of the new procurement regulations.

Grantees with populations exceeding 25,000 which do not already have similar procurement procedures will be implementing procurement provisions required by the regulations for the first time. These grantees will probably experience increased administrative costs but the amount cannot be estimated without some actual experience in complying with the requirements. EPA believes that the increased administrative costs to these grantees are justified to protect the fiscal integrity of the construction grant program and to avoid the potential for misuse of Federal funds.

5. How long will it take for grantees to process grant applications under the new regulations? How long does it currently take?

The average time frames from development of grant application to completion of construction grant steps are: step I--preparing facility plans--6-12 months; step II--preparing construction drawings and specifications--6-12 months; and step III--constructing the facility--2-4 years. The actual time frames depend, to a large extent, on the size and complexity of individual waste treatment facilities. Consulting engineer services are a major part of the facility planning and design steps, and the new procurement requirements would affect these two steps of the construction grant process. EPA believes that delays in the construction grant program would be experienced only by grantees which are not already using formalized procurement systems similar to those required by the new regulations.

We noted that two types of delays may result from the new procurement regulations: transition delays, which may initially slow grant development as a result of incorporating the new requirements into the construction grant process, and implementation delays, which may lengthen the grant development process because of increased grantee time to actually implement the new requirements.

Transition delays

Some delay may occur in the grant program because grantees must become familiar with the new requirements and must incorporate them into the grant development process. State officials and consulting engineer representatives believed that the new regulations may slow the grant approval process for 3 to 4 months before the regulations are fully understood

by grantees and grant applications are developed in accordance with procedures outlined in the regulations. During this transition period, a State official estimated the number of grant applications processed by EPA could drop to about 30 percent below normal monthly levels.

EPA officials, however, believe transition delays will probably be minimal. They point out that numerous groups--including State, engineering, and municipal associations--participated in the development of the final regulations and had the opportunity to disseminate information about the new requirements to their constituents. In addition, the regulations were published in the Federal Register on December 17, 1975, but most provisions did not become effective until March 1, 1976, thereby giving affected parties adequate time to adopt the new procedures. EPA also participated in workshops around the country that discussed and clarified the new regulations. EPA felt that these combined efforts would help to avoid transition delays.

We noted that State and national professional organizations were taking steps to minimize the effect of the new regulations. For example, the California State Water Resources Control Board prepared explanatory guidelines for use by municipalities in understanding and implementing the procurement regulations. In addition, the National League of Cities, National Association of Counties, and International City Management Association, in cooperation with EPA, are to hold seven seminars throughout the country beginning in May 1976, at which implementation of the regulations is to be discussed.

Implementation delays

EPA, States, and consulting engineers generally agreed that additional time would be required for grantees to implement the new procurement regulations. There are differing opinions, however, concerning which stage of the grant process will be affected and the amount of additional time required to implement the new requirements.

EPA stated that only the facility planning phase will require additional processing time, with 1 month as the estimated additional time needed. EPA believes that there will be no additional time necessary for the facility design or facility construction phases primarily because the majority of grantees that select an engineer for the initial facility planning process will probably use the same engineer for facility design and construction. In addition, the new regulations provide that--for grantees that currently have a planning or design grant--the onboard engineer can be used for

subsequent engineering work, even though the new procurement procedures were not used to select the existing engineer, if the grantee is satisfied with his work.

State, local, and consulting engineer officials, however, believe that the new procurement procedures will affect both the planning and design phases and will require additional time beyond the 1 month estimated by EPA. They estimate that a permanent lengthening of the construction grant process would occur and that up to 3 additional months would be required for the planning phase and up to 2 months for the design phase to comply with the new requirements.

EPA officials believe that the benefits gained from the implementation of the new procurement regulations will outweight any delays which may be incurred. We believe that the new regulations may lengthen the planning and design phases of the construction grant program; however, it is difficult--without actual experience--to estimate the true effect the regulations will have on the construction grant process.

6. What will be the increase in staff and budget to administer the regulations within EPA?

EPA previously received copies of agreements entered into by grantees and architect-engineers as part of the grant application process. The new procurement regulations provide for minimal additional EPA review during the construction grant process. An EPA project officer is to review all contracts for engineering services over $100,000, to check grantee compliance with procedural requirements of the procurement regulations. EPA stated that it is not intended for the project officer to "second guess" grantee actions or veto the grantee's choice of an engineer.

EPA estimates that an additional one-half to one man-year for each of the 10 regional offices will be required to administer the new procurement regulations. However, additional staffing had not been requested by EPA to administer the new regulations. In fiscal year 1976 the construction grant program received an additional 300 positions, and EPA believes this added staffing can absorb the increased administrative workload resulting from the new procurement regulations.

7. Were the development of these regulations worked out in consultation with the Office of Federal Procurement Policy within the Office of Management and Budget?

EPA coordinated the development of the new procurement regulations with the Office of Federal Procurement Policy

(OFPP) in the Office of Management and Budget (OMB) and with GSA. Initially, EPA discussed the proposed regulations with GSA because it was responsible for coordinating Federal agency procurement regulations with GSA's Federal Management Circular 74-7, attachment O, which establishes grantee procurement standards. In June 1975 OFPP became operational and both GSA and OMB became involved in reviewing EPA's proposed regulations.

Differences existed among EPA, GSA, and OMB concerning the requirements contained in EPA's proposed regulations. GSA and OMB stated that the procurement provisions contained in EPA's regulations required grantee actions which went beyond the standards established by attachment O. EPA believed, however, that attachment O contained basic standards for grantee procurement while the EPA procurement regulations merely implemented the standards and were necessitated by circumstances existing in the construction grant program.

On December 9, 1975, GSA gave EPA authority to publish the regulations as a temporary deviation from attachment O. Authorization was given primarily because (1) attachment O was under review for possible revision by an interagency study group and GSA and OMB believed experience gained by EPA under the new regulations could be useful to the study group and (2) GSA recognized the extensive work and coordination by EPA and affected parties in drafting the proposed regulations. When the interagency study group report is completed, EPA is either to conform its regulations with attachment O or to request a permanent deviation if any remaining differences were necessitated by special circumstances existing in the construction grant program.